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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application number :10/021,656
Applicant :Gary C. Johnson
Art unit :3681
Application Filed :12-12-2001
Examiner: :Dirk (Meyer) Wright

CLAIMS 17 – 18

REQUESTS:

- (1) Cancel claims; 1 through 16.**
- (2) Enter claims; 17 and 18.**

REMARKS:

- (1) The number of all claims have been calculated are; less than twenty.**

Claims 1-16 (cancelled)

Claim 17 (new), what is claimed is;

a new differential for a vehicle that is a combination of two planetary gears that, can rotate both axle sections of the said vehicle; under all road conditions and yet allows axle section rotation variability when needed, said differential comprising:

at least one first bevel gear planetary gear including;

a drivable case (8) having a means of rotatable support in a housing, bevel pinion gears (13,14) rotatively mounted in said case (8) on pinion gear shafts (3,4) side bevel gears (11,12) mounted for rotation in said case (8) and meshing with said pinion gears (13,14), a first axle shaft (5) stationary to a side bevel (12), and a second axle shaft (10) stationary to it's opposing side bevel gear whether; directly or indirectly, said differential further comprising;

at least one second planetary gear including:

a rotatable case (8) in a housing, two sun gears (6,7), at least one planet gear (15,16), a planetary gear carrier (9), a hollow intermediate shaft (19), a said first axle shaft (5), and a said second axle shaft (10);

wherein:

- (a) said planetary gear carrier (9) being; independently rotational of any other housing of the said differential; and supporting the said at least one planet gear (15,16), and the said planetary gear carrier (9) being; axially stationary to a side gear (11), axially and rotationally supported in differential housing (8), and axially stationary to said second axle (10),
- (b) a hollow intermediate shaft (19) stationary to case (8) by; support member (1), and support stock (2), said intermediate shaft (19) being; coaxial with the said first axle shaft, and pinion gear shafts (3,4), said intermediate shaft being; disposed coaxial with the said first axle shaft (5), and
- (c) a first sun gear (7) being; open throughout it's central axial stock and axially stationary to the end of said intermediate shaft (19), and
- (d) a second sun gear (6) axially stationary to the protruding end of said first axle shaft (5), and
- (e) at least one gear shaft (17/18) mounted in the said planetary gear carrier, being; off of center, stationary, and parallel to the axis of said planetary gear carrier, and
- (f) at least one planet gear (15/16) having; rotational and radial support in said planetary gear carrier (9) by way of; said at least one gear shaft (17/18) and said at least one planet gear (15/16); meshing with said first and second sun gears (6 and 7).

Claim 18 (new), as claimed in claim 17;

a combination planetary gear differential having; at least one second planetary gear comprising:

**a case (8) drivable for rotation in a housing, two sun gears (6,7), at least one planet gear (15,16),
a planetary gear carrier (9), a hollow intermediate shaft (19), and support stock / member(s)
(1,2); for said intermediate shaft (19);**

wherein:

- (a) a case (8) rotatable in a stationary housing having axial openings,**
 - (b) planetary gear carrier (9) axially rotatable and in said case (8), and**
 - (c) a hollow intermediate shaft (19) axially fixed / stationary in / to said case (8) by support member / stock (1,2), said intermediate shaft entered into said planetary gear carrier (9), and**
 - (d) a first sun gear 7 axially fixed / stationary to the end of said intermediate shaft (19), and**
 - (e) a first axial / axle shaft (5) rotatably and coaxially entered through said intermediate shaft (19) and said first axle shaft (5) protruding past said intermediate shaft (19); and**
 - (f) a second sun gear fixed / stationary to the inner / protruding end of said axle shaft (5), and**
 - (g) at least one gear shaft (17,18) mounted in the said planetary gear carrier (9); off of center and parallel to the central axis of the said rotatable case (8), and**
 - (h) at least one planet gear (15/16) rotatable on said at least one off of center gear shaft (17/18), said at least one planet gear (15,16); meshing with said first and second sun gears (6 and 7).**
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